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ABSTRACT

Professionals working with pediatric oncology patients recognize that the degree of pain the child experiences during painful medical procedures is related to both the physical insult and the child's degree of anxiety and fear. Two major lines of research in the area of pediatric pain management include the assessment of distress and training children to use coping strategies. This study examined the influence of the immediate social environment on the child's ability to cope during painful medical procedures. The subjects were 14 boys and 8 girls between the ages of 5 and 13 years diagnosed as having acute lymphocytic leukemia. Transcriptions and audiotapes of verbal interactions among residents, nurses, mothers, fathers, and children that occurred during bone marrow and lumbar puncture procedures were scored using the Child-Adult Medical Procedure Interaction Scale. Results revealed that during the medical procedures, adult vocalizations typically preceded child vocalizations. Adult criticism of the child, suggestions to other adults for managing the child's behavior, apologies to the child, giving control to the child, and reassuring comments typically preceded child distress. Also, when the child emitted any one of eight distress behaviors, the adults' repertoire seemed to be severely limited. Their overwhelming response preference was to reassure the child. Child coping seemed to be facilitated by adult commands to the child to engage in coping procedures, by nonprocedural talk to the child, and by humor directed to the child. (Suggestions for future research are included.) (Author/NB)

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The Effects of Adults' Behavior on Child Coping and Distress During BMA/LP Procedures: A Sequential Analysis

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Abstract

The influence of the immediate social environment on the child's ability to cope during painful medical procedures was examined. Transcriptions and audiotapes of verbal interactions among residents, nurses, mothers, fathers, and children that occurred during bone marrow and lumbar puncture procedures were scored using the Child-Adult Medical Procedure Interaction Scale (CAMPIS). Using Sackett's Lag Analysis to determine conditional probabilities, it was found that during the medical procedures, adult vocalizations typically preceded other adult vocalizations of the same content. Adult criticism of the child, suggestions to other adults for managing the child's behavior, apologies to the child, giving control to the child, and reassuring comments typically preceded child distress. Also, when the child emitted any one of eight distress behaviors, the adults' repertoire seemed to be severely limited--their overwhelming response preference was to reassure the child. Child coping seemed to be facilitated by adult commands to the child to engage in coping procedures, by nonprocedural talk to the child, and by humor directed to the child. Suggestions for future research are included.

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The Effects of Adults' Behavior on Child Coping and Distress During BMA/LP Procedures: A Sequential Analysis

All children who undergo medical procedures will experience some distress. This is particularly so with pediatric oncology patients. Cancer necessitates frequent painful medical treatments. The most painful of these are the bone marrow aspirations (BMA) and lumbar puncture (LP) procedures. These are usually repeated at least every 2 weeks during the early phases of treatment and during any remissions. Professionals working with these patients have long recognized that the degree of pain the child actually experiences during these and other painful procedures is related to both the physical insult and the child's degree of anxiety and fear. A very fearful and anxious child experiences a greater degree of pain from the same physical insult than a child who is less fearful and anxious.

The two major lines of research in the area of pediatric oncology, and pediatric pain management in general, include the assessment of distress (Katz, Varni, & Jay, 1984; Varni, 1983; Varni, Katz, & Dash, 1982), and training children how to use coping strategies. The most notable of the assessment studies in the oncology area have been conducted by Katz, Kellerman, and Siegel (1980, 1982), and Jay, Ozolins, Elliott, and Caldwell (1983). Katz et al. (1982) developed the Procedural Behavior Rating Scale-revised (PBRS-R), an observer recording scale in which the occurrence or nonoccurrence of 11 child behaviors indicative of distress is indicated during three phases of the medical procedure. From work

with the forerunner of the PRSB-R, Katz et al. (1980) found that younger children exhibited more diffuse verbal and physical expressions of distress over a longer duration, that girls exhibited higher levels of anxiety than boys, and that children do not habituate with repeated procedures. Borrowing from Katz et al. (1980), Jay et al. (1983) developed the Observation Scale of Behavioral Distress (OSBD). With the OSBD, each of 11 child behaviors were assigned weights according to how indicative of distress they were presumed to be by medical staff familiar with the BMAs and LPs. Jay et al. (1983) found that three predictor variables (child's age, parental anticipation of child's pain, and number of previous BMAs) accounted for 86% of the variance in children's distress scores. Of these three variables, the only one which lends itself to experimental manipulation is the level of pain anticipated by the parent. Further, parent Trait Anxiety scores were found to correlate with children's distress ($r = .46$; $p<.01$). These data suggest that parents who are anxious have children who exhibit greater degrees of distress. Jay et al. (1983) note the following:

> The authors' clinical observations suggest that children whose parents emphasize mastery over avoidance and who do not react in an overly anxious or overly indulgent manner, have children who cope better, exhibit less anticipatory anxiety before the clinic visit, and accept the bone marrow aspirations as a grim fact of life despite their behavioral protest during the procedures. (p. 143)

The findings of Jay et al. (1983) regarding the influence of parents' behaviors on children undergoing medical treatments indicates the need for a more comprehensive conceptualization of pediatric pain. Assessments that derive from this conceptualization should focus on both the child's behavior and the variables that influence the child's behavior--the behavior of the parents and staff who are present prior to and during the painful procedures. It should also be noted that most scales in the area of pediatric pain focus only on child distress behaviors, ignoring child coping behaviors and other routine behaviors that the child engages in during medical procedures. Not assessing coping behaviors directly means there is no easy mechanism for monitoring the actual performance of those desirable behaviors; only the presumed, and indirect, effects of coping behaviors through possible decreases in child distress. Thus, if no decrease in a child's distress occurs subsequent to training in coping skills, it is impossible to determine whether the treatment failure was due to the use of a presumed coping strategy that was ineffective for that child, or merely to failure to perform the coping behavior at the proper rate, time, or in the proper manner (see Peterson, Homer, & Wonderlich, 1982).

One example of a more comprehensive assessment of pediatric distress is the Dyadic Prestressor Interaction Scale (DPIS) by Bush, Melamed, Sheras, and Greenbaum (1985). The scale was designed to assess the occurrence of four child (Attachment, Distress,

Exploration, and Prosocial) and six maternal behavior categories (Ignoring, Reassurance, Distraction, Restraint, Agitation, and Informing) during 5 minutes of uninterrupted mother-child interaction in the waiting room prior to medical procedures. Bush et al. found that distraction by the mother and low rates of ignoring the child were associated with low rates of child distress. Maternal information giving was associated with active exploration by the child and low rates of distress. Maternal reassurance was associated with low rates of active exploration and high rates of distress. Maternal reassurance and agitation were associated with more maladaptive child responses. Although the utility of the DPIS has been investigated only in the period prior to medical procedures, and is limited to dyadic (maternal-child) interactions, it represents the most systematic attempt to date to assess the influence of interactions on children's ability to cope, as well as show distress. However, it should be noted that the small number of behavioral categories for both the mother and the child may limit the precision with which behavior-behavior relationships can be drawn between maternal and child behaviors (see Cone, 1986).

The second major line of research in pediatric oncology includes attempts to teach the child to use coping skills during particular painful procedures. These have included attempts to use distraction (Ingersoll, Nash, Blount, & Gamber, 1984; Redd, Jacobsen, Die-Trill, Dermatis, McEvoy, & Holland, 1987); coping statements, relaxation, breathing techniques, and behavioral rehearsal (Jay, Elliott,

Ozolins, & Olson, & Pruitt, 1985); and hypnosis (Kellerman, Zeltzer, Ellenberg, & Dash, 1983; Zeltzer & LeBaron, 1982). Generally, the results of these studies indicate that children who are taught to use coping strategies show less distress during a particular stressful situation. However, no attempts have been made to program for generalization of coping skills in the design of treatment programs. Teaching the child to use the skills in one painful situation (such as during the BMA and LP) does not assure that he or she could use those same skills in a different situation (such as at the dentist's office), and there are equivocal findings regarding the generalization of coping skills across time in the same stressful situation (Stokes & Baer, 1977). In addition, although trained pediatricians and psychologists have been utilized to coach children in the use of distraction, hypnosis, and other coping skills (e.g., Jay et al., 1985; Zeltzer & LeBaron, 1982), there have been no attempts to teach the parents how to effectively coach the children. Because parents are typically with their child during many medical treatments, training parents to solicit coping behaviors from a trained child may prove useful for promoting generalization of those skills across both time and settings. Also, teaching parents how to distract and coach their child in the use of coping skills should increase the parent's perceived self-efficacy and lower their level of anxiety and distress (see Jay et al., 1983) during their child's medical treatment.

A third related, and less developed, area of pediatric pain management has been the direct assessment of the effects of the

parent on the child's ability to cope during medical procedures. However, the manipulation typically utilized to assess parental effects has been the inclusion or removal of the parent from the treatment or pretreatment environment. Results are equivocal as to whether parental (usually maternal) presence reduces (Frankl, Shiere, & Fogels, 1962; Vernon, Foley, & Schulman, 1967) or exacerbates (Gross, Stein, Levin, Dale, & Wojnilower, 1983; Shaw & Routh, 1982; Shirley & Poyntz, 1941) child distress. Further, simple presence or absence does not identify the specific parental behaviors that might be responsible for facilitating or hindering the child's ability to cope. As noted earlier, the work of Bush et al. (1986) provides a more sophisticated approach to the investigation of parental influences on child distress and coping. What is needed now in this area are investigations which assess the influence on the child of adults who are present prior to and during the medical procedures. Further, in order to more precisely understand the relationships among the various adult and child behaviors that may be displayed in the treatment room, a relatively large number of adult and child behavior codes should be used.

The current study extends previous research in the area of pediatric pain management in several important ways. First, it assesses the behaviors of all of the adults and the child who are present prior to, during, and after the medical procedure. The adults include the resident who performs the BMA/LP procedure, the nurses who assist, and the mother and/or father. This allows for an

examination of the influence of adults' behaviors on the child, and for an evaluation of the influence of child behaviors on the adults who are present. Second, there are a larger number of categories in which to classify adult and child verbal behavior than have previously been used in this literature. Two kinds of child behaviors, coping and distress, are assessed. This larger number of behavioral categories allows for a more fine-grained analysis of the influences of specific behaviors on other behaviors (Cone, 1986), and may therefore increases the utility of these results for developing effective treatment programs. Third, rather than focusing on static measures of behavior, such as would be obtained by anxiety inventories or total distress scores, this study examines the elaborate, dynamic, social interaction (McFall & McDonel, 1986) of all the participants who would normally be present in the actual environment in which the child undergoes the medical procedures.

Method

Subjects and Setting

The subjects were 14 boys and 8 girls between the ages of 5 and 13 years (X = 117 months; SD = 39 months) who were diagnosed as having acute lymphocytic leukemia, the parent(s) of those children, and the medical staff who were present during the BMA and LP procedures. The medical staff included the resident who performed the procedure, and at least one of two nurses. The children were at various stages in the progression and treatment of the disease. The mean length of time since their initial diagnosis was 40 months (SD =

52 months). Neither the children nor the parents received any systematic, formal training in coping procedures. All of these procedures took place in a hospital treatment room. Informed consent was obtained from the parent(s) and child prior to subject participation.

Measurement

Audiotapes were made of the BMA/LP treatment procedures. Recording started after the physician entered the treatment room in which the child was present and ended 1 1/2 minutes after completion of the final medical procedure. From these audiotapes, transcripts were made of the verbal interactions which occurred during the treatment. The transcripts were constructed by one of six undergraduates and one graduate student. Each transcript was reviewed by a minimum of three people prior to scoring in order to assure that it accurately reflected the speaker, content, and sequence of the vocalizations. The transcripts and audiotapes were scored together using the Child-Adult Medical Procedure Interaction Scale (CAMPIS; Blount, Corbin, & Wolfe, 1987), which allows categorization of the subject, phase of the medical procedure (nine), adult or child vocal content, and affect. The vocal distress codes were partially derived from the work of Jay et al. (1983), some of the adult content codes were derived from the work of Hops, Wills, Patterson, & Weiss (1972; also see Wieder & Weiss, 1980), and the affect codes were borrowed from the work of Arthur, Hops, and Biglan (1982). In this study, only the adult and child vocal content codes will be considered.

The adult vocalizations included adult-to-adult, adult-to-child, and some vocalizations that could be directed to either other adults or to the child. The child vocal content codes included those indicative of child distress (crying, scream, verbal resistance, emotional support, verbal fear, verbal pain, verbal emotion, and information seeking), normal talk that occurs during a medical procedure (child informs about status, requests relief from nonprocedural discomfort, assertive procedural verbalizations, child's general condition related talk), and coping (makes coping statement, nonprocedural-related talk by the child, therapeutic breathing, and humor). A complete copy of the CAMPIS is available upon request.

Insert Table 1 about here

Rater Training

A total of six raters completed a 3-month training program. Initially they studied the CAMPIS and the coding procedures. The observers then practiced coding sections of two training transcripts, which had been coded by the first and second authors. This was done in private, with group discussion of their responses. Upon meeting the criterion of 80% agreement with the training transcripts for three consecutive days, raters were allowed to score actual transcripts.

Reliability and Data Analysis

Data were collected by having the raters view the transcript, score the transcript for content, listen to the audiotape and stop it as they wished in order to score the vocalizations for affect and to make any necessary modifications to their scoring of the content. (For example, humor might be scored after listening to the tape due to the laughter that the vocalization produced in one of the listeners.)

Interrater reliability was assessed with the use of independent raters on 25% of each audiotape, scoring either the first, second, third, or fourth quarter of the transcript/audiotape. The quarter selected was varied randomly from tape to tape. Six raters coded the data, using different pairings of observers. The obtained Kappa reliability figures were .8 for adult content codes and .92 for child content codes. Using the formula,

$$\frac{\text{agreements}}{\text{agreements \& disagreements}} \times 100$$

the percentage agreement between the observers was 83% for adult codes and 93% for child codes.

The data were examined using Sackett's Lag Analysis (Gottman, 1979; Sackett, 1979). The content data were collapsed across subjects, phases of the medical procedure, and affect. Further, all adults were considered together rather than as resident, nurse, mother, and father. Therefore, the analysis examines the relation of adult vocalizations to adult vocalizations, adult vocalizations to

child vocalizations, child vocalizations to adult vocalizations, and child vocalizations to other child vocalizations. There were 9,768 separate vocalizations in the data base.

Results

The results of conducting Sackett's Lag Analysis, which indicates the conditional probabilities of various responses given any criterion, are displayed in Tables 2 and 3. Each of the conditional probabilities are significant at the $p<.0001$ level unless otherwise noted. Using the Lag-One Correction Rule (Gottman, 1979, pp. 10-11), the behavioral chains terminate when the behavior at a particular lag is the same as the criterion (starting point), when the behavior at a particular lag is not the lag 1 behavior for the behavior immediately preceding it, or when the Z-score that tests for conditional against unconditional probabilities is nonsignificant. The analyses were performed for a maximum of five lags.

Lags Forward

Table 2 indicates which behaviors most frequently followed other behaviors when conducting the analysis from the beginning to the end of the medical procedures, with each behavior serving as the criterion. These results indicate that the predominant pattern for adult behaviors was for the criterion behavior to repeat at lag 1. That is, adults seem to cue other adults as to how to act in relation to one another and to the child. This was found for 12 of the 19 adult content codes. Nonprocedural talk to the child (NPTC) was followed by nonprocedural talk by the child, which was then followed

by nonprocedural talk to the child. Certain adult behaviors--criticism (CRIT), suggestions for managing child's behaviors (SMC), apologies (APOL), and giving control to the child (GCC)--typically were followed by child distress behaviors. Behavioral commands to the child (BCC; commands which direct the child to change some aspect of his or her behavior) typically were followed by reassuring comments (REASU). Checking the child's status (CST) was followed by the child informing about his or her status (CIA). Empathic statements by adults (EMP) were followed by both empathic statements by other adults and by reassuring comments. Child's general condition related talk by adults (CGCT) was followed by child's general condition related talk by the child.

Insert Table 2 about here

In the presence of child distress (CRY, SCRM, VRES, EMSUP, SFEAR, VPAIN, VEMOT, INSEK), the predominant adult behavior that followed was reassuring comments. This was found for up to five lags. Child informs about status was followed by adults' checking the child's status, which was again followed by the child informing about status. No clear pattern emerged for request relief from nonprocedural discomfort (RRD). Assertive procedural verbalizations (APV) were followed by reassuring comments for five lags. Child's general condition talk by the child was followed by child's general condition talk by adults. Makes coping statements (MCOP) was followed by notification of procedure to come (NPC). Nonprocedural talk by the

child (NPTC) was followed by nonprocedural talk by adults, which was then followed by nonprocedural talk by the child. Therapeutic breathing (BRTH) was followed by commands to engage in coping statements. Humor by the child (HUM) was followed by humor directed toward the child (HMC).

Insert Table 3 about here

Lags Backward

Conducting the lag analysis backward, from the end of the medical treatment to the beginning, provides relative frequencies of the antecedents of each behavior, particularly low rate behaviors. To these authors' knowledge, this is the first time that this approach has been used. Findings are similar to those found with the lags forward. Adults behaviors were usually preceded by adult behaviors of the same kind. Suggestions to other adults as to how to manage the child's behavior (SMC) were preceded by commands to the child to engage in coping strategies (CCS). Criticism (CRIT) was preceded by screaming (SCRM). Giving control to the child (GCC) was preceded by both GCC and by crying. Apologies (APOL) were preceded by reassuring comments for five lags. Behavioral commands to the child (BCC) were preceded by crying, which was preceded by reassuring comments.

The child distress categories were preceded almost exclusively by reassuring comments. The only exception was screaming, which was preceded by verbal pain, which in turn was preceded by reassuring comments. Request relief from nonprocedural discomfort (RRD) was

preceded by verbal emotion (VEMOT), which was preceded by reassuring comments.

Assertive procedural verbalizations (APV) was preceded by notification of procedure to come (NPC) for two lags. Nonprocedural talk by the child was again preceded by nonprocedural talk to the child, which preceded nonprocedural talk by the child. Therapeutic breathing (BRTH) was preceded by commands to engage in coping strategies (CCS) for five lags. It should be noted that 44% of the occurrences of therapeutic breathing were preceded by commands to engage in coping strategies at lag 1. Makes coping statements (MCS) was preceded by reassuring comments (.29 conditional probability) and by commands to engage in coping statements (.24 conditional probability) at lag 1. Humor by the child (HUM) was preceded by nonprocedural talk to the child at lag 1 and humor directed to the child (HMC) at lag 2.

Discussion

There are a number of findings in the current study that broaden our understanding of the interactions that occur in a pediatric medical treatment room. First, adults' verbal behaviors lead to similar behaviors on the part of other adults. For example, humor, nonprocedural talk, or reassuring comments by one adult typically lead to another adults' verbalizations of the same content category. Therefore, it appears that adults cue other adults as to how to behave in relation to one another and to the child. Second, certain adult behaviors--criticism, suggestions for ways to manage the child's behavior, apologies, and giving control to the child

typically were followed by child distress. Third, in the presence of child distress, adults were severely limited in their repertoires; they were only able to reassure the child. These reassuring comments did not appear to lead to a reduction of child distress, and, as shown by the reverse lag analysis, served as an antecedent for child distress. Fourth, certain adult behaviors were typically followed by child coping. For example, nonprocedural talk by adults was typically followed by nonprocedural talk by the child. Humor directed toward the child typically preceded humor by the child or nonprocedural talk by the child. It is likely that humor by adults and nonprocedural talk to the child served to distract the child from the distressing situation. Both therapeutic breathing and coping statements by the child were very likely to be preceded by adult commands to engage in coping behavior. Therefore, it appears that some adult behaviors may cue the child to cope, while others may promote distress.

The current study utilized naturalistic observation of adults and children who had not received systematic, formal training in the use of coping strategies. However, it is somewhat surprising that the adults' repertoires were so restricted in the presence of child distress. Adults were only able to attempt to reassure their child. It is likely that the history associated with reassuring comments by adults to children may explain their apparent tendency to elicit rather than retard child distress. For example, a child falls down and skins a knee but doesn't cry, the parent runs to the child to reassure the child that everything will be fine, and the child cries.

Did the fall or the reassurance elicit the crying? It should be noted that the finding that reassuring comments seem to hinder rather than promote coping is consistent with the results obtained by Bush et al. (1986) in a different setting, with a different population, and using a different methodology. Similarly, apologies tell the child that someone caused the child injury; it is likely that apologies also have a history of eliciting child distress. During the BMA/LP, it is apparently not helpful for the child to hear indications that something is wrong. It is interesting to speculate whether reassuring comments are not only adults' futile attempts to help the child, but also to increase their own feelings of competence and control in a stressful situation. In fact though, reassuring comments seem to have a paradoxical effect: they apparently do not relieve the child and thus may actually diminish adults feelings of control. Adults do not need to give too much control to the child at critical periods during the procedures. The highest probability behavior for children in the presence of a painful stimulus is distress in one form or another. Giving them control leaves them to their own devices as to how to manage themselves in this painful situation. Instead of giving the child control, this could be thought of as the parents and staff abdicating control and responsibility during the painful procedures (W. H. Redd, personal communication, March, 1987). However, it should be noted that parents and staff usually do not know what to do, a situation that is likely to increase adults' distress and anxiety (see Jay et al., 1983).

Instead of engaging in the behaviors that precede child distress, parents and staff could be taught how to engage in the behaviors that are antecedents for child coping. These include humor and nonprocedural talk to the child, which are probably more appropriate during the early, nonpainful phases of the medical procedure, and how to coach their child to use coping statements and therapeutic breathing immediately prior to and during the painful procedures. Humor and nonprocedural talk could serve to distract the child, and may communicate that the adults believe the child is capable of enduring the medical procedures. Commands to engage in coping strategies could serve to cue the child to perform a behavior incompatible with distress at the time that distress is most likely. It is interesting to note that when the children engaged in therapeutic breathing, it was preceded by adult commands to engage in coping strategies on 44% of the occasions at lag 1, and that commands to engage in coping strategies were the most probable behaviors to precede breathing for 5 lags. In other words, these children did not often perform the coping behavior the coaching of an adult. It is interesting to speculate that training adults how to interact with the children in a more therapeutic manner might also decrease adults' distress.

The demonstrated need to training adults to interact more effectively with children during painful procedures does not mean that children do not also need to be trained to engage in coping strategies. Instead, it would seem that the best approach would be to train both the child and adults, therefore increasing the child's

ability to perform the desired therapeutic behaviors and the probability that adults would provide frequent, salient cues to cope. It is likely that this team approach would yield better results than training the child alone, the approach that is typically reported. It is also possible that training parents to elicit coping in a child who is trained to engage in coping behaviors would lead to better maintenance of the coping behaviors. Also, it is possible that this approach would lead to generalization of coping behaviors across distressing situations (for example, to the dentist's office). In addition, because the current study suggests that adults take their cues from other adults as to how to behave during the BMA/LPs, it is possible that one or two trained adults would increase the likelihood that the other adults present in the treatment room will engage in more therapeutic interactions with the child, thus promoting generalization across care-givers.

Unlike most previous studies on pediatric pain and coping, the current approach to assessment provides data that should be directly applicable to the development of effective treatment programs (see Goldiamond, 1984; Hawkins, 1986). For example, the current study suggests relationships between particular adult behaviors and the tendency of the child to cope or display distress. By utilizing a large number of behavioral codes, it is possible to more precisely specify the relationships among the numerous events that occur in the treatment room. Further, the CAMPIS allows for monitoring of the application of independent variables (the desirable independent variables are taken here to be adult commands to engage in coping

strategies, nonprocedural talk directed toward the child, and humor), as well as dependent variables (typically distress behaviors by the child, but possibly coping behaviors as well; see Peterson, Homer, & Wonderlich, 1982, for a discussion of integrity of the application of the independent variable).

A certain amount of caution should be exercised in interpreting the results of this study. There were no manipulations in the study. Therefore, it is not an experimental investigation and does not establish causal relationships between the criterion behaviors and those behaviors that occur at the various lags. What this study does do is determine conditional behavioral probabilities, therefore outlining sequences of behavior that should be relevant to the development of clinical treatment studies. Such studies are required in order to establish firmly the validity of these findings (Cone, 1986; Hartmann & Wood, 1982; Nelson & Hayes, 1979).

There are also other questions that will be asked using the current data bank. For example, what is the influence of adult affect and child affect during the procedures? It is likely that how something is said, as well as what is said, is important in influencing the behavior of others in the treatment room. Also, it is very likely that the phase of the medical procedure affects the patterns of interaction between adults and other adults, as well as between adults and the child. This may mean that certain types of interactions are desirable during some phases, while other interactions are preferable during other phases. Each of these inquiries should provide us with additional information to use when

attempting to design maximally effective treatment programs for reducing children's distress. It should also be noted that the current conceptualization and approach to the assessment of pediatric pain during BMA and LP procedures should also be applicable to other situations, painful or otherwise, in which social interactions affect the child's ability to cope.

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CAMPIS CONTENT CODES

ADULT VOCALIZATIONS

ADULT TO ADULT

1. HMA Humor Directed To Adults
2. NPTA Nonprocedure-Related Talk To Adults
3. PTA Procedure-Related Talk To Adults
4. SMC Commands For Managing Child's Behavior

ADULT TO CHILD

5. HMC Humor Directed To Child
6. NPTC Nonprocedure-Related Talk To Child
7. CCS Command To Use Coping Strategy
8. CPA Command To Engage In Procedural Activity
9. PRAS Praise
10. CRIT Criticism
11. NPC Notice Of Procedure To Come
12. REASU Reassuring Comment
13. GCC Giving Control To The Child
14. APOL Apology
15. BCC Behavioral Commands To The Child
16. CST Checking Child's Status
17. EMP Empathy

ADULT TO EITHER ADULT OR CHILD

18. CGCT Child's General Condition Related Talk
19. CGSC Current General Status Comments

CHILD VOCALIZATIONS

20. CRY Crying
21. SCRM Scream
22. VRES Verbal Resistance
23. EMSUP Emotional Support
24. VFEAR Verbal Fear
25. VPAIN Verbal Pain
26. VEMOT Verbal Emotion
27. INSEK Information Seeking
28. CIA Child Informs About Status
29. RRD Request Relief From Nonprocedural Discomfort
30. MCOP Making Coping Statement
31. NPTC Nonprocedural-Related Talk By The Child
32. APV Assertive Procedural Verbalizations
33. CGCT Child's General Condition Related Talk
34. BRTH Therapeutic Breathing
35. HUM Humor By The Child

SACKETT'S LAG ANALYSIS FORWARD

		LAGS				
CRITERION	1	2	3	4	5	
1. HMA (241)	HMA .32					
2. NPTA (1392)	NPTA .71					
3. PTA (779)	PTA .50					
4. SMC (15)	CRY .20					
5. HMC (101)	HMC .20					
6. NPTC (520) (to child)	NPTC .29 (by child)	NPTC .36 (to child)				
7. CCS (449)	CCS .19					
8. CPA (380)	CPA .26					
9. PRAS (481)	PRAS .19					
10. CRIT (21)	CRY .29					
11. NPC (564)	NPC .17					
12. REASU (1252)	REASU .26					
13. GCC (72)	CRY .16	REASU .16				
14. APOL (50)	CRY .18	REASU .16	REASU .22	REASU .14	REASU .22	
15. BCC (82)	REASU .15					
16. CST (405)	CIA .31	CST .16				
17. EMP (69)	REASU .12					
	EMP .12					
18. CGCT (123) (by adult)	CGCT .50 (by adult)					
19. CGSC (120)	CGSC .32					
20. CRY (776)	REASU .26					
21. SCRN (181)	REASU .23	REASU .17				
22. VRES (199)	REASU .21					
23. EMSUP (231)	REASU .24	REASU .23	REASU .18			
24. VFEAR (14)	REASU .21	REASU .36				
25. VPAIN (300)	CRY .15	REASU .21	REASU .21	REASU .19	REASU .15	
26. VEMOT (45)	REASU .20	REASU .13	REASU .15	REASU .16	PTA .12	
		CCS .13			VRES .12	
27. INSEX (184)	REASU .60	REASU .33	REASU .24	REASU .18	REASU .22	
28. CIA (197)	CST .28	CIA .15				
29. RRD (12)	NPTA** .17					
	CPA** .17					
	BCC** .17					
	CST** .17	CIA .25				
	CRY** .17					
30. MCOP (17)	NPC* .18					
31. NPTC (219) (by child)	NPTC .63 (to child)	NPTC .33 (by child)				
32. APV (65)	REASU .35	REASU .17	REASU .18	REASU .22	REASU .18	
33. CGCT (34) (by child)	CGCT .32 (by adult)					
34. BRTH (139)	CCS .27					
35. HUM (39)	HMC .32					

Note. p<.0001 unless otherwise indicated. * p<.0005 ** p<.005.
The numbers in parenthesis indicate the total number of occurrences of that behavior in the data base.

SACKETT'S LAG ANALYSIS BACKWARD

LAGS

CRITERION	1	2	3	4	5
1. HMA (241)	HMA .32				
2. NPTA (1392)	NPTA .70				
3. PTA (779)	PTA .50				
4. SMC (15)	CCS .27				
5. HMC (101)	HMC .20				
6. NPTC (520) (to child)	NPTC .27 (by child)	NPTC .38 (to child)			
7. CCS (449)	CCS .19				
8. CPA (380)	CPA .26				
9. PRAS (481)	PRAS .19				
10. CRIT (21)	SCRM .43				
11. NPC (564)	NPC .17				
12. REASU (1252)	REASU .26				
13. GCC (72)	GCC .13 CRY .13				
14. APOL (50)	REASU .18	REASU .20	REASU .16	REASU .14	REASU .14
15. BCC (82)	CRY .20	REASU .21	REASU .15	NPC* .10 CRY* .10	
16. CST (405)	CIA .14	CST .16			
17. EMP (69)	CRY .17	REASU .17	REASU .25	REASU .23	REASU .19
18. CGCT (123) (by adult)	CGCT .50 (by adult)				
19. CGSC (120)	CGSC .32				
20. CRY (776)	REASU .20	REASU .19 CRY .19			
21. SCRM (181)	VPAIN .20	REASU .16			
22. VRES (199)	REASU .15				
23. EMSUP (231)	REASU .21	REASU .17	REASU .17		
24. VFEAR (14)	REASU .29	REASU .21			
25. VPAIN (300)	REASU .21	REASU .16	REASU .16	REASU .16	REASU .16
26. VEMOT (45)	REASU .38	VEMOT .13			
27. INSEK (184)	REASU .28	REASU .24	REASU .23	REASU .17	REASU .17
28. CIA (197)	CST .65	CIA .15			
29. RRD (12)	VEMOT** .17	REASU** .17			
30. MCOP (17)	REASU .29 CCS .24	REASU .29			
31. NPTC (219) (by child)	NPTC .69 (to child)	NPTC .33 (by child)			
32. APV (65)	NPC .17	NPC* .17			
33. CGCT (34) (by child)	CGCT .24 (by adult)				
34. BRTH (139)	CCS .44	CCS .26	CCS .20	CCS .20	CCS .14
35. HUM (39)	NPTC .28 (to child)	HUM .21			

Note. p<.0001 unless otherwise indicated. * p<.0005 ** p<.005. The numbers in parenthesis indicate the total number of occurrences of that behavior in the data base.